

## ABSTRACT

A compiler includes a real register allocation stage, an optimization stage and a final code stage. The real register allocation stage is configured to generate intermediate code from a basic block of source code. Physical registers, instead of virtual registers, are allocated to operands from the generated intermediate code, and the operands are stored in the physical registers. Then, the intermediate code is optimized, and machine readable code is generated from the intermediated code using the optimized registers in the final code stage. By allocating physical registers in the front-end of the compiler, instead of just prior to generating the machine-readable code, compiling time and memory needed for compiling source code is reduced.

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